

Assessment of the Potential Costs and Energy Impacts of Spill Prevention, Control, and Countermeasure Requirements for Oil and Natural Gas Pipelines

Report Prepared for the

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By

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Executive Summary

The purpose of this paper is to provide an assessment of the potential energy impacts arising from compliance costs required for implementation of the 2002 Spill Prevention, Control and Countermeasures (SPCC) rule at oil pipeline pump stations and crude oil gathering/injection stations and at natural gas pipeline compressor stations. This paper estimates that the total incremental capital cost to bring all crude oil, petroleum product and natural gas pipelines into compliance with the 2002 SPCC regulations could range from **\$103 million to \$868 million**. The estimated total SPCC compliance cost for oil pipelines range from \$59 million to \$512 million. The estimated total SPCC compliance cost for natural gas pipelines ranges from \$44 million to \$356 million. Secondary containment costs for breakout tanks, oil-filled equipment, loading racks and piping at these facilities are estimated to account for about 41 percent to 47 percent of the total incremental compliance costs. Estimated average costs for SPCC compliance could range from approximately \$17,000 to \$98,000 per pump station for crude oil and petroleum product pipelines, from \$36,000 to \$142,000 per gathering/ injection station for crude oil pipelines and from \$24,000 to \$118,000 per compressor station for natural gas pipelines.

The potential range of SPCC compliance costs for oil and natural gas pipeline industry is very great and could represent a substantial compliance cost to the pipeline industry depending upon how issues of DOT and EPA jurisdiction are ultimately resolved. For both oil and natural gas pipelines, the apparent uncertainty about the scope of the new rule has caused operators to incur significant costs to review facilities to determine what equipment might be “in” or “out” of the SPCC rule, which does not include the cost of then implementing the SPCC rule.

Potential SPCC compliance costs could be significant for oil pipeline operators, especially under a high cost scenario. Initial SPCC compliance costs as could be as much as 7 percent of total oil pipeline revenues for a high cost scenario. The potential impact of SPCC compliance costs on natural gas pipelines is expected to be lower than the impact on oil pipelines, representing less than 2 percent of natural gas pipeline revenue for the high cost scenario. The potential impact of SPCC compliance costs on any single regulated facility must be considered in the context of the cumulative cost for SPCC compliance at multiple, geographically dispersed facilities along a pipeline operated by a single company. Furthermore, the potential impact of SPCC compliance costs must also be considered in the context of the cumulative impacts of other environmental and public safety regulatory compliance costs.

SPCC compliance costs alone, although potentially quite high, are unlikely to result in the significant shut down of pipelines and cause a direct negative impact on energy supply. The more likely impact is that SPCC compliance costs shift resources away from other areas such as staffing, research and development, voluntary emission reduction programs, and certain facilities upgrades. Pipeline industry representatives have commented that the convergence of compliance requirements for the SPCC rule and clean air regulations has had an intangible impact on pipeline operations, in effect forcing some pipeline operators to “do more with less” by relying upon fewer staff and reducing investments.¹ In the event that the cumulative impacts of SPCC compliance costs plus other environmental and safety regulatory compliance costs cause some regional crude oil pipelines to be unprofitable, one direct energy impact might be loss of crude oil production from older, marginal oil fields. A reliable and cost-effective means to market the oil produced from old fields in mature oil-producing regions is needed to sustain the economic viability of low rate producing oil wells.

The results of this analysis, which must be viewed as an initial “screening” of the potential for SPCC compliance requirements to significantly impact oil and natural gas pipeline transport, show a very wide range in potential SPCC compliance costs for individual regulated sites and individual pipeline operators. At the high cost/ high impact end of this range, average SPCC compliance costs could be as much as 7

¹ Personal communication to Advanced Resources from AGA, INGAA, API and AOPL member companies.

percent of oil pipeline revenue or 2 percent of natural gas pipeline revenue, and total SPCC compliance cost for any single pipeline entity could be in the range of several million dollars.

SPCC Rule Background

The SPCC rule was first promulgated in 1973 and became effective on January 10, 1974.² The EPA amended the SPCC regulations in July 2002. The 2002 SPCC rule establishes requirements for non-transportation-related facilities with total aboveground oil storage capacity (in tanks or other oil-filled containers) greater than 1,320 gallons, or with buried oil storage tank capacity greater than 42,000 gallons. The 2002 SPCC rule revisions became effective August 16, 2002, but EPA subsequently amended the rule in 2002, 2003, 2004 to extend the compliance deadline. On December 12, 2005, EPA proposed further amendments to the July 17, 2002 version of the SPCC rule, and on February 10, 2006, extended the compliance date to October 31, 2007 for facilities to revise and implement their SPCC plans. The reason for the current extension is to provide EPA adequate time to take final action on the proposed December 2005 amendments to the 2002 rule.

Changes in the language of the 2002 SPCC rule expand the scope of the SPCC requirements and bring a number of types of facilities and/or pieces of equipment under the jurisdiction of the rule, beyond the storage tanks originally perceived to be the primary focus of the 1974 rule.³ For oil and natural gas pipelines, new types of facilities and equipment now covered by the 2002 rule potentially include:

- Pipeline breakout tanks and waste liquids tanks greater than 55 gallons and associated piping
- Oil/water separators at compressor/ booster stations and pump stations
- Compressor engine and pump engine lubricating systems and associated piping
- Diesel fuel storage tanks
- Emergency storage tanks
- Other associated valves and piping within the facility that are pressure isolated from the main transportation pipeline

Regulated facilities are those that can be reasonably expected to discharge oil into the navigable waters of the United States or adjoining shorelines in the event of a spill. Regulated facilities must maintain SPCC response plans, provide SPCC response training for personnel, provide secondary containment for regulated storage tanks and oil-filled containers and conduct regular visual inspection and integrity testing of bulk storage containers. A summary of requirements of the 2002 SPCC rule are provided in Attachment 1. Attachment 2 lists proposed 2005 rule amendments that could potentially apply to regulated pipeline facilities.

General Description of the Oil and Natural Gas Pipeline Sector

Oil Pipelines

Approximately 200,000 miles of interstate and intrastate pipelines in the United States transport crude oil and refined petroleum products between marine terminals, refineries and inland petroleum

² (38FR 34164)

³ These changes include the inclusion of the word “use” in Section 112.1 and the change in applicability from “tanks” to “containers” that “use” or store oil and have a maximum capacity of 55 gallons or more. EPA asserts that the 1974 rule was always meant to apply to oil-filled equipment, and that the use of the terms “container” and “use” in the language of the 2002 rule is a clarification of the original intent of the 1974 rule. This is evident from “Appendix C, Summary of Revised SPCC Rule Provisions” in EPA’s *SPCC Guidance for Regional Inspectors* published November 28, 2005. In the discussion of minimum container size in the 2002 rule (section 112.1 (d) (5) EPA states that in the 1974 rule “...all containers, regardless of size, were considered to be subject to SPCC provisions.” Again, in the discussion of oil-filled equipment in the 2002 rule (section 112.2) EPA states that the language in the 2002 rule is a “clarification on the application of the rule to this type of equipment.”

products terminals.⁴ Pipeline pump stations are located every 30 to 60 miles along a pipeline and are variously equipped with breakout tanks, pumps, shut-off valves, pipeline leak detection equipment, fuel storage tanks and additional storage capacity to contain oil in the event of a pipeline upset.⁵ Breakout tanks are used to relieve surges in an oil pipeline system or to receive and temporarily store oil transported by the pipeline for reinjection and continued transportation by the pipeline. Figure 1 shows a typical pipeline pump station for an onshore oil pipeline.

Pumps at pipeline pumping stations may be powered by electric motors or diesel. If the pump station is not electrified, potential oil-filled vessels at the facility include fuel tanks and diesel engines, as well as breakout tanks, additional emergency storage tanks, and oil/water separators. If the pump station runs on electric power, oil-filled vessels of concern for SPCC include the pipeline breakout and other storage tanks. Back-up electrical generators and back-up fuel for the generator may be subject to SPCC requirements, if the total oil storage capacity of the facility exceeds 1320 gallons. The capacity of breakout tanks can be substantial, up to 50,000 barrels or more,⁶ but as Figure 1 shows, it is unclear that all pump stations are equipped with large breakout tanks. For the purpose of this analysis, however, we assume that every pump station is equipped with at least one tank or vessel subject to SPCC requirements.

Crude oil injection stations receive crude oil from nearby production fields by transport truck or gathering pipeline for injection into a transmission pipeline. Air quality permits for crude injection stations in the Williston Basin indicate that these facilities vary in size, but typically contain several large oil storage tanks with capacities of 400 to 11,000 barrels or more, truck unloading areas, and injection pumps and pipeline sump boxes with capacities of 100 gallons or more.⁷ Throughput ranges from 1.5 to 2.5 million barrels per year. This analysis assumes that crude oil stations contain four to six tanks or other vessels subject to SPCC requirements.

Figure 1. Sisquoc Pump Station, Santa Barbara County, California⁸



Crude oil injection stations receive crude oil from nearby production fields by transport truck or gathering pipeline for injection into a transmission pipeline. Air quality permits for crude injection

⁴ National Petroleum Refiner's Association, NPRA

⁵ See Shell Pipeline Company, www.shellpipeline.com, "About Pipelines"

⁶ For example, Seabury Storage and Pumping Station, Mobile, AL (currently not in use) see www.loopnet.com

⁷ For example: Montana Air Quality Permit for Richland Crude Oil Station, Permit #3183-00, 1/15/04 and Montana Air Quality Permit for Spring Lake Crude Oil Station, Permit #33354-00, 1/18/05.

⁸ Source: County of Santa Barbara Planning and Development, Energy Division. Sisquoc Pump Station is part of the ConocoPhillips crude oil pipeline system that transports crude oil from the Lompoc Oil and Gas plant.

stations in the Williston basin indicate that these facilities vary in size, but typically contain several large oil storage tanks with capacities of 400 to 11,000 barrels or more, truck unloading areas, and injection pumps and pipeline sump boxes with capacities of 100 gallons or more.⁹ Throughput ranges from 1.5 to 2.5 million barrels per year. This analysis assumes that crude oil stations contain four to six tanks or other vessels subject to SPCC requirements.

Natural Gas Transportation

The U.S. natural gas transportation system has three main components:

- The system of natural gas gathering lines that link natural gas production sites to central collection points, gas processing plants, and transmission mains,
- The transmission system that transports gas from gas processing plants, gas storage and gas gathering systems through large interstate and intrastate pipelines to local distribution markets,
- The distribution system that delivers gas from the intrastate pipeline “city gates” to end users including small commercial and residential customers.

There are approximately 23,700 miles of onshore natural gas gathering lines, 298,900 miles of onshore interstate and intrastate natural gas transmission pipeline, and more than 1.1 million miles of natural gas distribution pipelines in the United States.¹⁰ There are approximately 450 underground natural gas storage sites in the U.S. with an estimated total working natural gas storage capacity of more than 3.5 trillion cubic feet (Tcf). This analysis addresses SPCC compliance issues primarily at compressor or “booster” stations associated with natural gas transmission and storage including the intrastate transmission and gas storage facilities operated by local gas utilities. SPCC compliance issues for natural gas gathering lines are addressed in a companion white paper that focuses on SPCC compliance costs and energy impacts in the oil and gas exploration and production sector.

The natural gas transmission system consists of large diameter, high pressure pipelines (20 inches to 42 inches in diameter) plus compression booster stations located every 40 to 100 miles, plus meter stations at pipeline hubs and gas distribution points or “city gates”. Water and hydrocarbon liquids condense out of the natural gas stream as it moves through a transmission pipeline and cools. The pipeline gas is passed through a separator at pipeline booster stations to remove free liquids, which are collected and stored in breakout or storage tanks at the compressor stations for later sale or disposal. Figures 2 and 3 show a typical natural gas pipeline compressor station. The number of compressor stations located at underground storage sites is not precisely known but is estimated to be 350 compressor engines or turbines. Some large storage fields will have multiple compressor stations distributed over a large area, and some smaller storage fields will share a single compressor station between two or three fields.¹¹

⁹ For example: Montana Air Quality Permit for Richland Crude Oil Station, Permit #3183-00, 1/15/04 and Montana Air Quality Permit for Spring Lake Crude Oil Station, Permit #33354-00, 1/18/05.

¹⁰ Source: American Gas Association, *Gas Facts*, 2004. Washington, D.C.

¹¹ Source: American Gas Association, personal communication to Robin Petrusak, Advanced Resources International, August 2006.

Figure 2. Natural Gas Compressor Station¹²



Figure 3. Interior View of Pipeline Compressor Station¹³



A typical compressor station has an average of two centrifugal compressors (turbines) or seven reciprocating compressors. The compressors are usually installed in parallel so that individual compressors can be taken off-line as needed for maintenance. Although compressors are generally fueled by natural gas, each compressor contains 150 gallons to 800 gallons of lubricating oil, with additional lube oil tanks or oil sumps containing up to 1600 gallons.¹⁴ Compressors are enclosed in a building, which could be expected to contain oil in the event of a spill of lubricating oil. This analysis assumes that some portion of natural gas compressors must be brought into compliance with the secondary containment requirements of the 2002 SPCC rule, and that operators will take the approach that the building enclosure will provide adequate secondary containment if upgraded with doorway spill barriers and floor drain protectors.

¹² Source: Williams Pipeline Company; <http://www.williams.com/northeastexpansion/compressor>

¹³ Source: Williams Pipeline Company; <http://www.williams.com/northeastexpansion/compressor>

¹⁴ American Gas Association, Comments of the American Gas Association on Oil Pollution Prevention: Spill Prevention, Control, and Countermeasure Plan Requirements – Amendments, 70 Fed. Reg. 73524 (Dec. 12, 2005), Docket ID No. EPA-HQ-OPA-2005-00, February 10, 2006

Significant SPCC Compliance Issues for Oil and Gas Pipelines

EPA Jurisdiction for SPCC; Split jurisdiction for SPCC. EPA has jurisdiction for SPCC over non-transportation-related pipeline facilities. The Department of Transportation (DOT) and the U.S. Coast Guard have jurisdiction over transportation-related and coastal facilities. The definition of non-transportation-related facilities, in the case of oil and natural gas pipelines, has been established through a series of Executive Orders and Memoranda of Understanding between EPA and DOT. The DOT has jurisdiction over “interstate and intrastate onshore and offshore pipeline systems,” whereas EPA has jurisdiction over “oil drilling and production facilities,” “industrial, commercial, agricultural and public facilities that use and store oil,” and “pipelines used to transport oil within the confines of a non-transportation related facility.”¹⁵ While it is clearly established that the SPCC rule does not apply to intrastate and interstate oil and gas transmission pipelines, clarification is needed regarding EPA’s jurisdiction over pipeline-related facilities such as breakout tanks, odorant tanks, condensate tanks, fractionation tanks, gathering lines, pump stations, compression booster stations and associated piping. Many in the oil and gas pipeline industry regard the 2002 SPCC rule as an inappropriate expansion of EPA jurisdiction to include oil and gas pipeline which is not supported by existing law and is redundant of existing DOT requirements.¹⁶ Additional background information on the issue of EPA jurisdiction over pipeline facilities is included as Attachment 3.

There continues to be concern and confusion resulting from the lack of a clear jurisdictional boundary between EPA and DOT for pipeline facilities. DOT jurisdiction appears to cover any pipeline-related facility, tank or equipment that is “in-line” with the pipeline and is at the same operating pressure as the main pipeline or under cathodic protection. EPA jurisdiction for SPCC appears to extend to pipeline-related facilities that are pressure-isolated from the main pipeline. EPA asserts that its jurisdiction under the SPCC rule begins at the point past the first pressure-influencing device (such as a valve or pump) that can affect the operating pressure of the main pipeline. Figure 4 is an illustration of a typical EPA/ DOT jurisdiction scenario.

Breakout tanks may be regulated by EPA, by the DOT Office of Pipeline Safety or by both agencies, depending upon how the tank is used. A breakout tank is subject only to DOT jurisdiction if it is used only to relieve surges in an oil pipeline system, or to receive and temporarily store oil transported by the pipeline for reinjection and continued transportation by the pipeline. If the same tank is used for other purposes such as a bulk storage container, it is no longer solely within the definition of breakout tank, and may be subject to the SPCC rule. For example, a bulk storage tank used to store oil while also serving as a breakout tank is under the jurisdiction of both DOT and EPA.¹⁷ EPA has criticized DOT’s oil spill response plan requirements as too broad or vague and for not being facility or tank specific. Industry’s view is that the DOT Facility Response Plan requirements are quite similar to the EPA oil spill response preparedness requirements, which are a component of EPA’s SPCC programs, and as a practical matter, the same spill notices, contractors, equipment and methods are used in spill response preparedness for both FRP and SPCC.¹⁸

The EPA’s *SPCC Guidance for Regional Inspectors* provides nine additional illustrations of SPCC jurisdiction scenarios for oil pipeline-related facilities. These guidance scenarios are criticized for not

¹⁵ U.S. Environmental Protection Agency, 2005, *SPCC Guidance for Regional Inspectors*, Version 1.0, November 28, 2005, pp. 2-8 – 2-11.

¹⁶ Pipeline industry comments to Advanced Resources International, August 2006; conveyed through the American Petroleum Institute.

¹⁷ U.S. Environmental Protection Agency, 2005, *SPCC Guidance for Regional Inspectors*, November 28, 2005, EPA/ DOT Jurisdiction Scenarios.

¹⁸ Pipeline industry comments to Advanced Resources International, August 2006; conveyed through the American Petroleum Institute.

reflecting actual conditions for most of the pipeline industry and for not correlating to established law.¹⁹ Questions also remain concerning EPA jurisdiction for SPCC at natural gas pipeline compressor stations. Although the compressors at booster stations are clearly “in-line” with the natural gas pipeline (and typically fueled by natural gas) the regulatory status of oil-filled equipment at these facilities (including lube systems, separators, condensate tanks and waste liquid tanks) may not always be apparent.

Gathering lines for natural gas and oil tend to be owned and operated by production companies and are generally considered part of the production system. For SPCC purposes, gathering lines within the geographical boundaries of an oil or gas field are considered to be components of non-transportation related oil and gas production facilities under EPA jurisdiction and subject to SPCC requirements. DOT or EPA jurisdiction may still need to be resolved for crude oil stations, which collect oil production from multiple fields via small diameter pipelines or tank trucks, for injection into a transmission pipeline. This analysis assumes that crude oil storage tanks and truck unloading areas at pipeline injection stations are regulated under the SPCC rule.²⁰

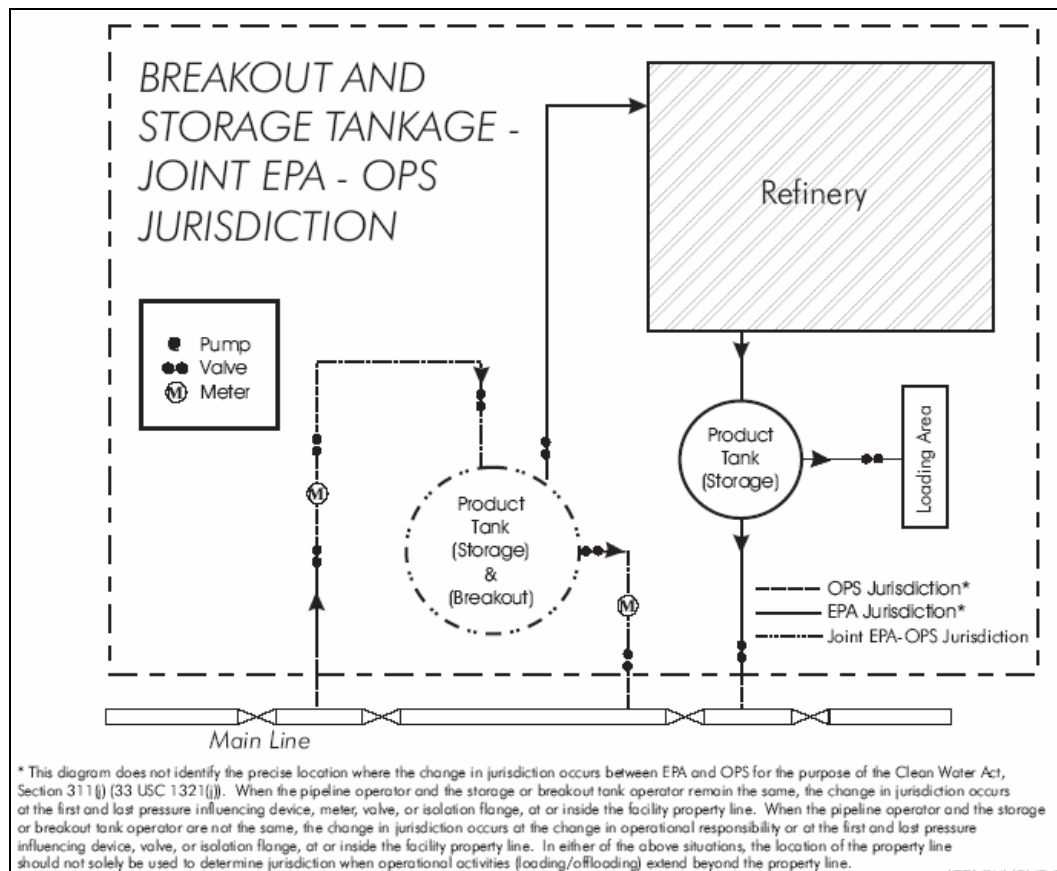
The pipeline industry clearly objects strenuously to dual EPA/ DOT jurisdiction over facilities for SPCC/ FRP. To attempt to resolve the issue, the pipeline industry has advanced more than one proposal towards a negotiated agreement about which agencies would regulate which industry facilities.²¹ Regardless of how the issues of EPA/ DOT jurisdiction may be resolved for individual facilities, the end result of the 2002 SPCC rule for the oil and gas pipeline sector is that the rule potentially applies to numerous, widely-spaced facilities extending throughout a nearly 1.6 million mile network of oil and natural gas pipelines.

¹⁹ Pipeline industry comments to Advanced Resources International, August 2006; conveyed through the American Petroleum Institute.

²⁰ (49 CFR 195) DOT Office of Pipeline Safety (OPS) does not regulate gathering lines 8 5/8 inch or less nominal outside diameter that transport petroleum from a production facility, but such a gathering line is subject to OPS response planning requirements. This unresolved jurisdictional issue is illustrated by Chapter 2, Attachment 8 in EPA, *SPCC Guidance for Regional Inspectors*, November 28, 2005 version.

²¹ Pipeline industry comments to Advanced Resources International, August 2006; conveyed through the Association of Oil Pipelines.

Figure 4. Illustration of Joint EPA and DOT Jurisdiction over Pipeline Breakout and Storage Tanks²²



Applicability of the SPCC rule to interstate and intrastate natural gas pipeline systems; definition of a facility. A significant issue for understanding the potential energy impacts of the SPCC rule on oil and gas pipelines is determining what pipeline-related facilities and equipment come under the jurisdiction of the SPCC rule. The main issue for **oil pipelines** appears to be interagency dual jurisdiction over breakout tanks and storage tanks operated at atmospheric pressure, tank truck unloading racks at crude injection stations, small diameter pipelines that deliver field production to central crude oil injection stations, and possibly diesel fuel and lube oil storage at pumping stations.²³ Applicability of the SPCC rules to small diameter pipelines that tie oil production fields to large transmission pipelines may need to be decided on case by case basis. If such lines are determined to be non-transportation related, they will be subject to SPCC requirements for an SPCC plan, secondary containment and cathodic protection (section 112.8 (d)). The 2002 SPCC rule increased the scope of requirements for buried pipe, requiring new buried piping to have secondary containment or to be cathodically protected (or otherwise meet part 280 pipeline standards). The 1974 rule required cathodic protection only if soil conditions warranted it, but the 2002 rule does not allow a deviation from this requirement based on soil conditions. This analysis assumes that the cost impacts of SPCC compliance for small diameter gathering pipeline is

²² Source: U.S. Environmental Protection Agency 2005, *SPCC Guidance for Regional Inspectors*, November 28, 2005.

²³ For oil pipelines, it appears that “in-line” facilities such as pump stations are considered part of the pipeline system regulated by DOT and therefore, are not subject to SPCC requirements.

covered by a companion white paper on the energy impacts of SPCC compliance on the oil and gas upstream production sector.

For **natural gas pipeline and utility companies**, industry comments on the 2005 SPCC rule amendments seek explicit clarification regarding the applicability of the SPCC rule to natural gas pipeline and distribution systems. Industry recommends that the following pipeline-related facilities be designated part of natural gas transportation-related systems and not subject to SPCC requirements:²⁴

- Natural gas interstate and intrastate transmission lines and local utility distribution mains;
- Natural gas pipelines and piping within compressor stations, take stations, city gate stations, and natural gas storage facilities that are incident to gas transportation
- Hard-piped lube oil systems and piping for compressors in transportation service
- Natural gas cleaning equipment for interstate pipelines including drips, scrubbers, separators and filters. Such equipment is considered essential to the operation of interstate natural gas pipelines and therefore should be explicitly defined as “transportation-related equipment.”
- Tanks hard-piped into the pressurized natural gas transmission or distribution system and/or its cathodic protection system, such as odorant tanks and condensate tanks hard-piped to gas cleaning equipment.
- Fractionation tanks for pipeline pigging operations. These tanks are integral to pipeline safety procedures required by DOT pipeline integrity regulations. Large numbers of these tanks are deployed at remote locations along many miles of pipeline. Frac tanks have previously been assumed to be under DOT jurisdiction, but industry is now seeking explicit clarification from EPA that the tanks are not regulated under SPCC.

If the facilities and equipment listed above are considered to be transportation-related under the jurisdiction of the DOT, then associated hard-piped oil-filled equipment such as compressor lube systems, condensate drips and oil-water separators would be regulated by pipeline safety requirements. As with oil pipelines, breakout condensate tanks and other storage tanks that are operated at atmospheric pressure and can not impede the flow of gas, would be considered non-transportation related and thus subject to SPCC requirements.

Requirements for secondary containment and integrity testing of bulk storage containers. All SPCC-regulated breakout tanks for oil and gas pipelines are required to have secondary oil spill containment such as dikes, berms, curbing, gutters and retention ponds, etc. Such secondary containment must be sufficiently impervious to retain the oil until it can be cleaned up, as well as have sufficient volume to contain the capacity of the tank plus precipitation. Pipeline breakout tanks and emergency storage tanks are typically located on a concrete slab and or thick layer of gravel to reduce fire hazards, and slow down the movement of oil in the event of a spill.²⁵ Such measures may not meet the definition of secondary containment in the 2002 SPCC rule, and as a result, pipeline operators have been evaluating their facilities since 2002 and gradually adding secondary containment systems where needed. It is not known how many SPCC-regulated pipeline system tanks have new secondary containment installed to comply with the 2002 rule. The secondary containment requirement can be waived on the basis of technical impracticability (requiring an impracticability determination by EPA) and substituted by integrity testing, a spill contingency plan, and a written commitment of equipment and manpower for spill clean up.

²⁴ American Gas Association, Comments of the American Gas Association on Oil Pollution Prevention: Spill Prevention, Control, and Countermeasure Plan Requirements – Amendments, 70 Fed. Reg. 73524 (Dec. 12, 2005), Docket ID No. EPA-HQ-OPA-2005-00, February 10, 2006.

²⁵ American Gas Association, Comments of the American Gas Association on Oil Pollution Prevention: Spill Prevention, Control, and Countermeasure Plan Requirements – Amendments, 70 Fed. Reg. 73524 (Dec. 12, 2005), Docket ID No. EPA-HQ-OPA-2005-00, February 10, 2006.

SPCC-regulated tanks must have regularly scheduled visual inspection and non-destructive integrity testing such as ultrasonic testing, hydrostatic pressure testing, or x-ray and radiographic analysis. This is a new requirement added in the 2002 rule. Visual inspections and integrity testing can likely be conducted on the same schedule as other pipeline maintenance and inspection; however the integrity testing must be completed according to written procedures developed by a certifying engineer. Depending upon the number and size of eligible tanks for integrity testing, the distance between the various tank locations, and the inspection frequency, this requirement could be a significant expense for a pipeline operator.

The complexity of a facility SPCC Plan is increased by the 2002 rule, which adds to the cost and time required to complete the Plan. SPCC Plans must specify the location and configuration of all oil-filled tanks and equipment covered by a plan; the plans must be certified by a professional engineer (PE). These requirements present an added compliance burden for pipeline operators, depending upon the size of their operations and the number of SPCC regulated facilities along the pipeline route. For natural gas pipelines, the relative impact of this requirement will also depend on whether facilities such as compressor booster stations are classified as transportation or non-transportation related facilities. If the latter case, compressor booster stations are complicated facilities with multiple compressors, gas-cleaning equipment and associated piping. Detailed SPCC plans for multiple, geographically-dispersed compressor stations could require significant effort to assess the sites, draft SPCC plans for each site, and implement various SPCC requirements. Other unresolved issues concern odorant tanks and fractionation tanks for pigging systems. In some cases these tanks are associated with compressor stations and would presumably be included in the SPCC plans for the compressor station. In some cases such tanks are remote from booster stations and might require a unique SPCC plan for each tank site. In any event, a single pipeline entity, whether an oil or natural gas pipeline, could require as many as several hundred SPCC plans over a span of hundreds or thousands of miles.

Special issues for remote pipeline facilities. Two SPCC compliance issues are of special concern for remote pipeline facilities. The first concerns the definition of “navigable” waters of the United States. Industry asserts that EPA is remiss in not clearly defining what constitutes a “threat to the navigable waters of the United States.” As a result, many remote pipeline facilities considered to have negligible or very low risk for contamination of navigable waters are being subject to regulation under SPCC.

The second SPCC issue of concern for remote facilities is the requirement for lighting and fencing, which apparently conflicts with security guidance to not “call attention” to pipeline facilities in remote areas. Moreover, most remote facilities do not have an electrical power source for lighting. SPCC lighting would require a generator, fuel and maintenance for the generator, which would increase air emissions from the facility and increase the risk of a spill from the generator fuel source

Overview of Analytical Considerations for Compliance Cost Analysis

This report is focused on the potential energy implications of SPCC compliance for the oil and natural gas pipeline sector, with particular emphasis on the potential cost to bring all facilities into compliance with the 2002 SPCC regulation by the current compliance deadline of October 31, 2007. The following sections present the analytical approach and assumptions used to estimate a range of potential capital costs for SPCC compliance. The final section presents the results and considers the potential energy impacts of this capital outlay by the petroleum and natural gas pipeline sector. Several fundamental considerations must be addressed to estimate compliance costs and the ensuing energy impacts:

- What types of facilities and equipment must comply?
- How many or what portion of facilities are subject to the 2002 SPCC requirements?
- What SPCC requirements apply to each type of facility and what actions must operators take to comply?

- What are the estimated incremental costs associated with compliance including initial compliance costs and recurring or ongoing costs? (*For this analysis, the primary focus is on initial compliance costs.*)

A “high” compliance cost scenario and a “lower” compliance cost scenario were developed, corresponding to high potential impacts and lower potential impacts scenarios. Factors that differentiate the cost/ impacts scenarios include the estimated number of facilities needing to comply with the 2002 SPCC rule, the estimated number of tanks and oil-filled equipment at these facilities, and variability in the cost to implement specific requirements of the rule.

General Logic for Estimating Facilities and Equipment Subject to the 2002 SPCC Rule

The 2002 changes to the SPCC rule result in a number of additional facilities or pieces of equipment included under the rule, beyond the storage tanks originally perceived to be the focus of the 1974 rule. However, not all facilities/ equipment need to take action to comply. For example:

- Some facilities are already in compliance
- Some facilities are located such that they pose no threat to “navigable waters.” (Under EPA’s current interpretation of “navigable waters”, few pipeline facilities are assumed to be exempt from SPCC requirements on the basis of location.)²⁶
- Some do not meet the size threshold:
 - For facilities that have total storage capacity of less than 10,000 gallons, the operator may be allowed to “self-certify” the SPCC plan. (This analysis assumes that a negligible portion of oil and natural gas pipeline facilities have a storage capacity less than 10,000 gallons. Consequently, the self-certification provision of the December 12, 2005 proposed rule-making is assumed to have little effect on the pipeline sector.)
 - The total oil storage capacity of the facility does not exceed 1320 gallons.

Facilities that are not in compliance will need to pursue one or more alternative actions to comply:

- Revise and certify an existing SPCC plan.
- For facilities/ equipment lacking an SPCC plan, some may be incorporated under an existing (revised) SPCC plan and some will require a new SPCC plan.
- Some will build new secondary containment or enhance existing containment around equipment/ tanks not in compliance.
- For some equipment, secondary containment will be impractical and a spill contingency plan will be substituted. The spill contingency plan includes an inspection and maintenance program, spill response plan and a written commitment to provide the necessary spill response resources and trained personnel.
- Some facilities will identify and need to address additional gaps in SPCC compliance, which may include cathodic protection or secondary containment of piping; inspections and integrity testing of tanks and oil-filled equipment; leak testing of pipes and valves, enhanced security measures and SPCC training.
- Some facilities will do nothing because the facility is already in compliance, is smaller than the size threshold, or does not threaten navigable waters.

²⁶ The June 19, 2006 Supreme Court decision in the joint cases of *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers* may change this interpretation, but it is premature at this time to consider the potential impact.

Therefore, this analysis estimates that a percentage of oil and natural gas pipeline facilities will incur costs to implement one or more of the following steps before the October 31, 2007 SPCC compliance deadline.

- Revise an existing SPCC plan.
- Develop a new SPCC plan
- Test existing secondary containment to demonstrate sufficient capacity and imperviousness to oil
- Install new or upgrade secondary containment for tanks and oil-filled equipment
- Install new or upgrade secondary containment for loading/ unloading racks
- Install new secondary containment or cathodic protection for valves and piping
- Demonstrate impracticality for secondary containment and substitute a spill contingency plan
- Conduct initial non-destructive integrity testing of aboveground storage tanks (After the compliance deadline, periodic testing is required on a regular schedule.)
- Install or upgrade tank overfill protection
- Conduct initial leak testing of piping and valves (After the compliance deadline periodic testing is required on a regular schedule.)
- Upgrade site and equipment security measures
- Provide SPCC training for oil-handling personnel

Estimated Facility and Tank Count for Oil and Natural Gas Pipelines

EPA estimates that the pipeline sector has 704 SPCC-regulated facilities, each one having a total oil storage capacity of less than 5,000 gallons.²⁷ EPA's estimated facility count and total oil storage capacity both seem very low. Assuming that the estimated storage capacity "counts" only a single tank, it implies an average of one breakout tank installation per every 700 miles of either natural gas or oil pipeline. Various industry sources suggests that the number of SPCC-regulated facilities for pipelines is likely to be much larger than 700 facilities, especially if pump stations and compressor stations are located every 30 to 100 miles, depending upon terrain and pipeline size. Furthermore, the likely capacity of breakout tanks or pipeline emergency storage tanks is in the range 10,000 gallons to more than a million gallons. Depending upon the number of and distance between tank installations along a pipeline route, and the ownership of these facilities, tank installations are likely to be defined as separate facilities each requiring a separate SPCC plan.²⁸

This analysis estimates a facility count in three categories of pipeline facilities. The estimated facility counts for each category are summarized in Table 1:

- Oil pipeline pumping stations
- Crude oil gathering/injection stations
- Natural gas pipeline booster stations

The number of pump stations for the high cost scenario assumes one pump station for every 40 miles of pipeline; pump stations for the low cost scenario assumes one pump station for every 60 miles of pipeline. The number of breakout tanks per pump station is estimated based on miscellaneous air permits and other industry information characterizing for pump stations and crude oil injection stations. The number of compressor stations for the lower cost scenario is based on EPA's estimated compressor station count for

²⁷ U. S. Environmental Protection Agency, 2005, *Regulatory Analysis for the Proposed Revisions to the Oil Pollution Prevention Regulation (40 CFR Part 112)*, Exhibit 3-1, November 2005.

²⁸ For example, Williams Pipeline Company reported in their 2002 Annual Report that they expected to revise 100 SPCC plans to comply with the 2002 SPCC rule.

the Natural Gas Star Program.²⁹ The compressor station count for the high cost scenario assumes one compressor station for every 100 miles of pipeline. The number of tanks and compressors at compressor stations is based on background information on compressor stations available in Natural Gas STAR *Lessons Learned* papers. The number of crude injection stations is an Advanced Resources estimate based on professional judgment. The estimated number of tanks per crude injection station is based on information obtained from air permits for crude stations in the Williston Basin.³⁰

Table 1. Estimated SPCC Facility/ Equipment Count for Oil and Natural Gas Pipelines

Facilities & Equipment	Pump Stations – Oil Pipelines	Crude Gather/ Injection Sites – Oil Pipelines	Compressor Stations – Natural Gas Pipelines
High Cost Impacts Scenario			
Facilities	5,000	150	3,000
Breakout Tanks (or other SPCC regulated equipment)	3	6	4
Truck Loading/ Unloading	1	2	1
Compressors	-	-	7
Lower Cost Impacts Scenario			
Facilities	3,333	75	1,800
Breakout Tanks (or other SPCC regulated equipment)	1	4	2
Truck Loading/ Unloading	1	1	1
Compressors	-	-	3

Bringing Oil and Natural Gas Pipelines into Compliance

As discussed above, the high and low compliance cost scenarios are differentiated by the number of facilities, tanks and equipment assumed to be brought into compliance, as well as by the estimated costs to implement various requirements of the 2002 SPCC rule. Table 2 summarizes estimated facility and equipment counts and the assumed percentage of facilities needing to comply with at least one requirement of the 2002 SPCC rule. The estimates of facilities and equipment needing to comply with the 2002 SPCC rule are based on best professional judgment. There appears to be little data available on the current level of compliance with the 2002 SPCC rule.³¹ As real data are obtained from industry stakeholders, assumptions about facility compliance and implementation costs will be updated and the analysis will be modified.

The assumptions and estimates listed in Table 2 were applied in a spreadsheet to estimate the total number of oil and natural gas pipeline facilities still needing to comply with various requirements of the 2002 SPCC rule. For example, Table 2 assumes that 75 percent of crude oil injection stations revise and certify an existing plan and 25 percent require a new SPCC plan for the lower cost scenario. Sixty percent of compressor stations on natural gas pipelines are assumed to require a new SPCC plan for the high compliance cost scenario, 35 percent of compressor stations are assumed to revise and certify an

²⁹ See for example, the Natural Gas STAR *Lessons Learned* papers pertaining to compressor stations.

³⁰ See for example, Air Quality Permits for the Richland Crude Oil Station (Permit 3183-00, 1/15/04) and the Spring Lake Crude Oil Station (Permit 3354-00, 2/03/05) in Richland County, Montana.

³¹ One exception is the Maine Department of Environmental Protection which conducted a survey in 2005 of SPCC compliance across multiple industrial and commercial sectors and found 40% percent of facilities surveyed with no SPCC plan.

existing plan, and 5 percent of compressor stations are assumed to be exempt from SPCC requirements because the locations provide no threat to navigable water in the event of a spill.

Following is an example of how the assumptions summarized in Table 2 are used in a spreadsheet to estimate the number of facilities and components that must be brought into compliance with SPCC requirements:

Example Calculation to Estimate Potential Cost Impact of Bringing Oil Pipeline Pump Stations into Compliance for Secondary Containment

Lower Cost Impact Scenario Assumptions:

- 20 percent of pump stations need to substantially upgrade or install new secondary containment for all breakout tanks on site; 1 tank per facility assumed for the lower impacts scenario.
- $3,333 \times 0.20 = 667$ facilities estimated to need secondary containment
- $667 \text{ facilities} \times 1 \text{ tank per facility} = 667$ tanks estimated to need secondary containment installed or upgraded

High Impact Scenario Assumptions:

- 35 percent of pump stations need to substantially upgrade or install new secondary containment for all breakout tanks on site; 3 tanks per facility assumed for the high impact scenario
- $5,000 \text{ pump stations} \times 0.35 = 1,750$ facilities estimated to need secondary containment
- $1,750 \text{ facilities} \times 3 \text{ tanks per facility} = 5,250$ tanks estimated to need secondary containment installed or upgraded

Once the facilities and equipment needing to comply with current SPCC requirements are estimated, the facility counts are multiplied in a spreadsheet by the estimated cost to implement the various SPCC requirements. Continuing the example above, the cost to install or substantially upgrade secondary containment at a pump station is estimated to range from approximately \$10,000 per tank for the lower impact scenario to \$20,000 per tank for the high impact scenario. Thus, the total estimated compliance cost for secondary containment in the lower impact scenario is approximately \$6.7 million. Under the high impact scenario the total estimated compliance cost for secondary containment of tanks at pump stations is \$105 million.

Table 2. Summary Table of Assumptions for Facility SPCC Compliance for Oil and Natural Gas Pipelines

Estimated Affected Facilities	Pump Stations – Oil Pipelines		Crude Gather / Injection Sites – Oil Pipelines		Compressor Stations – Natural Gas Pipelines	
	Lower Impact	High Impact	Lower Impact	High Impact	Lower Impact	High Impact
No. of Facilities	3,333	5,000	75	150	1,800	3,000
Average No. of Aboveground Breakout and Storage Tanks per Facility	1	3	4	6	2	4
Average No. of Compressors per Facility					3	7
% Facilities revise existing SPCC plans	75%	65%	75%	65%	50%	60%
% Facilities that require new SPCC plans	20%	35%	25%	35%	35%	35%
% Facilities exempt from SPCC requirements	5%	0%	0%	0%	5%	5%
% Facilities substitute spill contingency plan for 2nd containment	20%	20%	10%	10%	25%	25%
% Facilities test existing secondary containment for 80% of tanks/equip.	35%	35%	25%	35%	35%	35%
% Facilities install new secondary containment for x% tanks/equip.	20%	35%	10%	10%	20%	35%
% Facilities install new containment - truck loading racks	10%	10%	10%	10%	30%	30%
% Facilities install new containment/ cathodic protect for valves/ piping	25%	50%	25%	50%	25%	40%
% Facilities install/ upgrade containment of compressor buildings	n.a.	n.a.	n.a.	n.a.	35%	35%
% Facilities that conduct integrity testing of x% tank	20%	35%	20%	35%	20%	35%
% Facilities that install tank overfill prevention at x% of tanks	20%	25%	20%	25%	20%	25%
% Facilities conduct leak testing of valves/ piping	20%	35%	20%	35%	20%	35%
% Facilities upgrade site security measures	20%	35%	20%	35%	20%	25%
% Facilities conduct/ upgrade annual SPCC training	20%	35%	20%	35%	20%	35%

Estimating Incremental SPCC Compliance Costs

Table 3 summarizes estimated incremental costs to implement various components of the SPCC rule. These cost data were garnered from a variety of sources as indicated. Since the focus of this analysis is the cost impact of initial SPCC compliance, the costs in Table 3 are treated as capital costs - initial or “one-time” expenditures to bring a facility into compliance. Facilities will incur several of the cost elements in Table 3 on an on-going basis to maintain SPCC compliance. Future periodic expenditures such as plan updates and inspections and integrity tests would likely be incurred as part of a facility’s operating costs.

Table 4 shows the total estimated SPCC compliance cost components for oil and natural gas pipelines. Table 4 is the output from a spreadsheet analysis that multiplies the estimated facility and equipment counts by the estimated incremental cost for each compliance component. Table 4 shows the total estimated cost to implement each SPCC compliance component, from developing a new SPCC plan to installing secondary containment, to providing enhanced security for oil-filled equipment. The estimated cost for all SPCC compliance components are summed to get a total SPCC compliance cost for each category of facilities in the oil and natural gas pipelines sector – pump stations, crude oil injection stations and compressor stations.. This total is divided by the estimated number of facilities in each category to obtain an estimated average SPCC compliance cost per facility in that category. For example, Table 4 shows that for oil pipeline pump stations, the sum of total costs for all SPCC compliance components is \$56 million for the lower impacts scenario and \$491 million for the high cost scenario. Dividing these totals by the estimated number of pump stations for each scenario (3,333 pump stations for the lower cost scenario and 5,000 pump stations for the higher cost scenario) gives an estimated average SPCC compliance cost per pump station ranging from \$17,000 (lower cost scenario) to \$98,000 (high cost scenario).

Table 3. Estimated SPCC Compliance Cost Components

Cost Item/Action	Estimated Cost - Low	Estimated Cost - High	Source
<i>Prepare New or Revise Existing SPCC Plan</i>			
Cost to prepare new SPCC plan for small facility, includes PE certification	\$5,000	\$10,000	US Small Business Administration Comments to EPA Docket (9/30/003); industry advisement 2006
Cost for SPCC plan; facility w/ 1 – 5 tanks	\$10,000	\$20,000	Naval Facilities Engineering Service Center, Users Guide for SPCC Regulation, October 2003, UG-2056-Env (NAVFAC Guide); industry advisement ³²
Cost for SPCC plan; facility w/ 5 - 20 tanks	\$30,000	\$50,000	NAVFAC Guide; industry advise to scale up cost
Cost for SPCC plan; facility w/ 20 - 50 tanks	\$50,000	\$100,000	NAVFAC Guide; industry advise to scale up cost
PE certification of existing SPCC plan	\$5,000	\$10,000	US SBA, Comments to Docket EPA-OPA-2004-0007; Synthetic Organic Chemical Manufacturer's Assoc. Comments to Docket 1/7/2003; industry advise to scale up costs
Self certify SPCC or demonstrate exemption	\$5,000	\$10,000	Estimate & industry advisement
<i>Secondary Containment</i>			
Test imperviousness of existing containment	\$1500	\$8,000	Ohio Oil and Gas Association , Comments to Docket SPCC-1P-2-58 (12/23/91); industry advisement
New Concrete Berm (2,500 - 5000 gallons)	\$10,000	\$20,000	NAVFAC Guide (cost scaled up for larger tanks)
Rollover (Drivable) Berm for Loading/ Unloading Areas (1000 - 5,000 gallons)	\$5,000	\$12,000	NAVFAC Guide (cost scaled up for larger area)
Cost to retrofit existing containment so it is more impervious to oil	\$20,000	\$25,000	Ohio Oil and Gas Association , Comments to Docket SPCC-1P-2-58 (12/23/91); industry advisement to scale up cost
Containment Area Drains & Sump Pumps	\$1,000	\$1,000	NAVFAC Guide; industry advisement
Doorway Spill Barriers	\$3,000	\$11,000	NAVFAC Guide
Portable Containment Berms	\$3,000	\$7,000	NAVFAC Guide
Install tank linings, large tanks per site	\$50,000	\$50,000	Sioux Falls, SD; Williams Energy Partners, LP, 2002 Ann. Rpt., \$300,000 (est. 6 tanks @ \$50,000 per tank); industry advisement
<i>Leak Testing, Inspection, Spill Contingency Planning</i>			
Leak Testing of Valves & Piping, per pipe segment	\$200	\$1,000	NAVFAC Guide
Annual Leak Testing ,Valves & Piping, per facility	\$2,000	\$20,000	NAVFAC Guide, depends on length of piping system & detection method
Install permanent release detection system for underground pipe systems	\$40,000	\$1,000,000	NAVFAC Guide, Depends on size of facility
Spill clean up and drain protection systems	\$1,000	\$3,000	estimate, NAVFAC Guide, Depends on size of spill & complexity of facility, range is \$800 - \$10,000
Tank Integrity Test., brittle fracture eval., per tank	\$10,000	\$12,000	NAVFAC Guide, assumes a 20,000 gallon steel AST; industry advisement
Tank Integrity Testing, 1320 gal - 10,000 gal, per tank	\$2500	\$5000	U.S. EPA <i>Regulatory Analysis for the Proposed Revisions to Oil Pollution Prevention Regulation (40 CFR Part 112)</i> , November 2005 (US EPA, 2005); industry advisement
Tank Integrity Testing, 10,001 - 42,000 gal, per tank	\$10,000	\$25,000	US EPA, 2005; industry advisement
Tank Integrity Test., 42,000 - 1,000,000 gal, per tank	\$25,000	\$50,000	US EPA, 2005; industry advisement
Tank Integrity Testing, >1,000,000, per tank	\$50,000	\$75,000	US EPA, 2005; industry advisement
Inspection of AST tank bottoms (large AST, 100' dia.)	\$30,000	\$50,000	M. P.H. Brongers, 2000, <i>Hazardous Materials Storage</i> , CC Technologies Laboratories, Inc., Dublin, OH
Replace AST Tank Bottom	\$200,000	\$500,000	M. P.H. Brongers, 2000, <i>Hazardous Materials Storage</i> ,

³² Several industry representatives who reviewed early drafts of this analysis commented that the NAVFAC costs seemed to low by at least a factor of 2 or 3. As a result many of the NAVFAC costs were rounded up and increased accordingly. In some cases, the NAVFAC cost was replaced by other cost data provided in industry comments.

			CC Technologies Laboratories, Inc., Dublin, OH
Security and Training			
Valve Lockouts, each	\$25	\$100	NAVFAC Guide; industry advisement
Fencing, linear foot, includes gates & fence posts	\$25	\$50	NAVFAC Guide
Install area lighting on poles (1 or 2 fixtures per pole), per pole	\$4,000	\$5,000	NAVFAC Guide
Employee SPCC training	\$2,000	\$4,000	Estimate for larger facilities
Employee SPCC training	\$1,000	\$2,000	Estimate for smaller facilities
Overfill Protection			
Overfill Prevention Warning Signs	\$150	\$150	NAVFAC Guide
Liquid Level Sensing Device	\$200	\$1,000	NAVFAC Guide, per tank
Liquid Level Sensing Devices w/ Alarms, simple	\$4,000	\$5,000	NAVFAC Guide, per installation (not per tank)
Liquid Level Sensing, Alarm & Shut Off, fully automated	\$12,500	\$18,000	NAVFAC Guide, per installation (not per tank)
Corrosion Protection			
Internal lining for 10,000 gallon tank	\$48,000	\$48,000	M. P.H. Brongers, 2000, <i>Hazardous Materials Storage</i> , CC Technologies Laboratories, Inc., Dublin, OH
External coating for 10,000 gallon tank (reapply every 5 years)	\$6,000	\$6,000	M. P.H. Brongers, 2000, <i>Hazardous Materials Storage</i> , CC Technologies Laboratories, Inc., Dublin, OH
Installation of Impressed-Current Cathodic Protection for 100' dia. aboveground tank	\$17,000	\$17,000	M. P.H. Brongers, 2000, <i>Hazardous Materials Storage</i> , CC Technologies Laboratories, Inc., Dublin, OH
Annual Cost of Impressed Current Cathodic Protection (includes depreciation, electric power, annual & bimonthly inspection)	\$1,800	\$1,800	M. P.H. Brongers, 2000, <i>Hazardous Materials Storage</i> , CC Technologies Laboratories, Inc., Dublin, OH

Table 4. Potential SPCC Compliance Cost Components for Oil and Natural Gas Pipelines – 2002 SPCC Rule

Compliance Action	Pump Stations - Oil Pipelines				Crude Gather/ Injection Sites - Oil Pipelines				Compressor Stations - Gas Pipelines			
	High Impact		Lower Impact		High Impact		Lower Impact		High Impact		Lower Impact	
	# Facilities	Cost	# Facilities	Cost	# Facilities	Cost	# Facilities	Cost	# Facilities	Cost	# Facilities	Cost
SPCC Plans												
Revise & PE Certify Existing SPCC Plan	3250	\$65,000,000	2,500	\$ 12,500,000	98	\$1,950,000	56.3	\$281,250	1800	\$36,000,000	900	\$4,500,000
Develop New SPCC Plan and PE Certify	1750	\$35,000,000	667	\$ 6,666,667	53	\$2,625,000	18.8	\$187,500	1050	\$21,000,000	810	\$8,100,000
Exempt from SPCC due to location	0	0	167	\$ 833,333					150	\$1,500,000	90	\$450,000
Subtotal/ SPCC Plan Estimated Cost	5,000	\$100,000,000	3,333	\$ 20,000,000	150	\$4,575,000	75	\$468,750	3,000	\$58,500,000	1,800	\$13,050,000
Secondary Containment												
Install New Containment or Upgrade - Tanks	1750	\$105,000,000	667	\$3,333,333	52.5	\$2,625,000	15	\$750,000	750	\$60,000,000	360	\$3,600,000
Test Existing Secondary Containment	1750	\$ 2,625,000	1,167	\$ 1,750,000	98	\$ 146,250	56	\$ 84,375	1050	\$ 1,575,000	630	\$ 945,000
Spill Contingency Measures Where 2ndry Containment is Impractical	1000	\$80,000,000	667	\$7,600,000	15	\$2,325,000	8	\$310,500	750	\$78,750,000	450	\$9,630,000
Install New Containment or Upgrade- Truck Loading/ Unloading	500	\$7,500,000	333	\$ 1,666,667	15	\$510,000	8	\$45,000	1200	\$20,400,000	360	\$2,160,000
Install New Containment or Cathodic Protection - Valves/ Piping	2500	\$25,000,000	833	\$ 4,166,667	75	\$750,000	19	\$93,750	1200	\$12,000,000	360	\$1,800,000
Install New Tank Overfill Prevention	1250	\$6,250,000	667	\$2,666,667	38	\$187,500	15	\$60,000	750	\$3,750,000	360	\$1,440,000
Secondary Containment Estimated Cost		\$226,375,000		\$21,183,333		\$6,543,750		\$1,343,625		\$176,475,000		\$19,575,000
Leak & Integrity Test												
Leak Test Valves & Piping	1750	\$3,500,000	667	\$1,333,333	52.5	\$525,000	15	\$30,000	1050	\$2,100,000	360	\$720,000
Periodic Tank Inspection and Integrity Test	1750	\$131,250,000	667	\$6,666,667	52.5	\$7,875,000	15	\$600,000	1050	\$105,000,000	360	\$7,200,000
Leak & Integrity Test Estimated Cost		\$134,750,000		\$8,000,000		\$8,400,000		\$630,000		\$107,100,000		\$7,920,000
Security Measures												
Assume 200' of fencing, 1 light, 2 valve locks	1750	\$26,600,000	667	\$6,033,333					750	\$11,400,000	360	\$3,258,000
Assume 400' of fencing, 2 lights, 4 valve locks					52.5	\$1,596,000	15	\$271,500				
Other Measures (employee training, etc.)	1750	\$3,500,000	667	\$ 666,667	52.5	\$210,000	15	\$30,000	1050	\$2,100,000	360	\$360,000
Security Measures Estimated Cost		\$30,100,000		\$6,700,000		\$1,806,000		\$301,500		\$13,500,000		\$3,618,000
SPCC Compliance - Total Cost		\$491,225,000		\$ 55,883,333		\$ 21,324,750		\$ 2,743,875		\$355,575,000		\$ 44,163,000
Estimated Average Cost per Facility		\$98,245		\$16,765		\$ 142,165		\$ 36,585		\$ 118,525		\$ 24,535

Estimated SPCC Compliance Costs for Oil and Natural Gas Pipelines

The range of total SPCC compliance costs estimated for oil and natural gas pipelines is summarized in Table 5. The total incremental capital cost to bring the entire petroleum and natural gas pipeline sector into compliance with the 2002 SPCC rule is estimated to range from **\$103 million** to **\$868 million**. The total compliance cost for oil pipeline **pump stations** is estimated to range from **\$56 million to \$491 million**. For **crude gathering/ injection stations**, the total estimated compliance cost ranges from **\$3 million to \$21 million**. For **compressor stations** along natural gas pipelines, the total estimated cost for SPCC compliance ranges from **\$44 million to \$356 million**. The estimated average compliance cost per individual pipeline facilities site is also shown in Table 5.

Table 5. Summary of Estimated Total SPCC Compliance Costs for the Oil and Natural Gas Pipeline Sector

	High Cost/ Impact (\$ million)	Lower Cost/ Impact (\$ million)
Total SPCC Compliance Cost – Oil & Gas Pipeline Sector	\$ 868	\$ 103
Pump Stations	\$ 491	\$ 56
Crude Oil Injection Stations	\$ 21	\$ 3
Compressor Stations	\$ 356	\$ 44
	(\$)	(\$)
Average SPCC Compliance Cost per Facility (\$/site)	\$ 106,000	\$ 20,000
Average Cost per Site – Oil Pipeline Pump Stations (\$/site)	\$ 98,000	\$ 17,000
Average Cost per Site – Crude Oil Injection Stations (\$/site)	\$ 142,000	\$ 36,000
Average Cost per Site – Compressor Stations (\$/site)	\$ 118,000	\$ 24,000

Table 4 provides detailed estimated SPCC compliance costs by SPCC component, showing estimated total costs for SPCC plans, secondary containment, leak and integrity testing and enhanced security for facilities and equipment at oil pipeline pumping and crude injection stations and natural gas pipeline compressor (booster) stations. Table 6 lists the total SPCC compliance costs for the major categories of SPCC compliance actions: the SPCC plan; secondary containment of tanks and equipment; leak detection; and enhanced security measures. These categories are listed in Table 6 in descending order from potentially the most costly compliance actions for pipeline sector to the least costly compliance actions:

- Secondary containment
- SPCC Plan
- Leak detection and integrity testing
- Security Measures

The estimated total contribution to SPCC compliance costs from SPCC plans plus tank integrity testing requirements is 48 to 49 percent under both the high and the low cost scenarios. For the high cost scenario, secondary containment and other spill prevention measures are estimated to contribute 47 percent of the total SPCC compliance cost for the oil and natural gas pipeline sector. Leak detection, inspection and integrity testing are estimated to contribute 29 percent of total compliance costs. SPCC plans contribute approximately 19 percent and enhanced security measures add another 5 percent to total SPCC compliance costs. For the lower cost scenario, secondary containment is estimated to contribute 41 percent of the total SPCC compliance cost for oil and natural gas pipelines. SPCC plans are estimated to contribute approximately 33 percent of the total SPCC compliance costs. Leak detection, inspection and

integrity testing account for 16 percent of total compliance costs and enhanced security measures contribute 10 percent.

The wide range in estimated SPCC compliance costs is largely the result of the uncertainty regarding what pipeline facilities and equipment are regulated solely by EPA and what facilities and equipment are regulated jointly by the EPA and DOT. The following examples of actual SPCC compliance costs were provided as examples to help “calibrate” the cost analysis. The examples described below do not include the cost of tank and pipeline integrity testing, periodic tank inspections, and maintenance of SPCC plans. The SPCC compliance cost examples DO include the cost of new SPCC plans; updating and certification of existing plans; and installation of SPCC mandated improvements such as secondary containment.³³

- “For a petroleum products pipeline entity consisting of 4,000 miles of pipe and 20 facilities (including breakout stations and storage terminals), the cost of SPCC mandated improvements is approximately \$1.9 million. The SPCC compliance cost can be expressed as an average cost of \$95,000 per pipeline facility, or as an average cost of \$475 per pipeline mile.
- For a 350 mile crude oil gathering line with 74 facilities including gathering (injection) stations and loading areas, the cost of SPCC compliance is approximately \$0.9 million. The SPCC compliance cost can be expressed as an average cost of \$12,200 per pipeline facility, or as an average cost of \$257 per pipeline mile.
- For a natural gas transmission pipeline entity consisting of 25,000 miles of pipe and 317 compressor stations, the SPCC compliance cost is approximately \$4.6 million. This represents an average SPCC compliance cost of \$14,500 per compressor station or \$184 per pipeline mile.

These cost examples suggest that the range of estimated SPCC compliance costs in Table 5 are reasonable approximations of likely SPCC compliance costs for oil and natural gas pipelines.

³³ Examples provided by the American Petroleum Institute and Association of Oil Pipelines via e-mail communication from Roger Claff, API, to Robin Petrusak, Advanced Resources International, August 2006. These examples are compiled from API and AOPL member company comments.

Table 6. Summary of Estimated Total SPCC Compliance Costs by Compliance Component for Oil and Natural Gas Pipelines

SPCC Compliance Cost Component	High Cost/ Impact Scenario (\$ million)	Lower Cost/ Impact Scenario (\$ million)
Secondary Containment		
Total Secondary Containment Cost – All Facilities	\$ 409	\$ 42
Oil Pipeline Pump Stations	\$ 226	\$ 21
Crude Oil Injection Stations	\$ 7	\$ 1
Natural Gas Pipeline Compressor Stations	\$ 176	\$ 20
SPCC Plans		
SPCC Plans, Total Cost – All Facilities	\$ 163	\$ 33.5
Oil Pipeline Pump Stations	\$ 100	\$ 20
Crude Oil Injection Stations	\$ 4.6	\$ 0.5
Natural Gas Pipeline Compressor Stations	\$ 58.5	\$ 13
Leak Detection, Inspection & Integrity Testing		
Total Leak Detection and Testing Cost – All Facilities	\$ 250	\$ 17
Oil Pipeline Pump Stations	\$ 135	\$ 8
Crude Oil Injection Stations	\$ 8	\$ 0.6
Natural Gas Pipeline Compressor Stations	\$ 107	\$ 8
Enhanced Security, Training		
Total Security, Training Cost – All Facilities	\$ 45	\$ 11
Oil Pipeline Pump Stations	\$ 30	\$ 7
Crude Oil Injection Stations	\$ 2	\$ 0.3
Natural Gas Pipeline Compressor Stations	\$ 13	\$ 0.4

Sources of Uncertainty in Compliance Cost Analysis

It is important to remember that this compliance cost analysis is an initial estimate of the potential cost to bring all oil and natural gas pipeline facilities into compliance with the 2002 SPCC requirements, as well as an initial estimate of the potential range of compliance costs that individual facilities might face. There is significant uncertainty regarding the number and types of pipeline facilities that are under the jurisdiction of the EPA for the SPCC rule. There is uncertainty about the definition of oil as it pertains to natural gas pipeline odorant and waste fluids, as well as uncertainty over which tanks at a pipeline facility are regulated by EPA and which tanks are regulated by the Department of Transportation (DOT). There is also uncertainty about actual SPCC compliance costs and the percentage of facilities and equipment that are already in compliance with the SPCC rule.

This analysis in draft form has proved to be an effective starting point for discussion with pipeline industry representatives, who have offered helpful insights and valuable information on SPCC compliance costs and other compliance issues. As new, sector-specific, facility-specific or company-specific data are acquired, the costs and assumptions presented here can be modified to provide the best possible understanding of the cost impacts of the 2002 SPCC rule on the pipeline sector.

While there is uncertainty around all the inputs to this analysis, key sources of uncertainty include the following:

- Facilities Count and Facilities Characterization – An accurate count of total facilities in each category is needed.

- Facilities Already in Compliance – The percentage of facilities already in full compliance with the 2002 SPCC and the percentage that have yet to fully comply with SPCC are major drivers of the results of this analysis. These percentages are assumed.
- Tanks and Oil-filled Equipment - A better understanding of the numbers of tanks and equipment under EPA’s jurisdiction at individual facilities, as well as the current level of partial compliance with various components of the SPCC rule are needed. This is another key driver of the results of the analysis.
- Incremental Compliance Cost - Potential compliance costs have been assembled from a variety of sources, but could be improved. Industry advice from the petroleum terminals and petroleum marketing sectors have improved the cost estimates by providing ranges of typical and reasonable costs for several SPCC compliance elements (such as constructing secondary containment). Additional industry input was used to “scale up” some of the costs obtained from the NAVFAC source.

Potential Energy and Economic Impacts of SPCC Compliance for Oil and Natural Gas Pipelines

It is challenging to estimate the potential economic and energy impacts of the SPCC rule on natural gas and oil pipelines because of the uncertainty regarding what, or to what extent, particular types of pipeline facilities and equipment are exempt from the SPCC rule. For both oil and natural gas pipelines, the apparent uncertainty about the scope of the new rule has caused pipeline companies significant work and expense to review facilities and operations to determine what equipment might be “in” or “out” of the SPCC rule. Both oil and natural gas pipeline operator’s have commented that the potential range of SPCC compliance costs for the pipeline industry is very broad and could represent a substantial compliance burden on the industry depending upon how issues of DOT and EPA jurisdiction are ultimately decided. The greatest sources of uncertainty about SPCC compliance requirements, and potentially the sources of the highest compliance costs, are the following:

- Secondary containment for aboveground piping at compressor stations.
- Secondary containment for break out tanks and associated aboveground piping.
- Secondary containment for low pressure separator and scrubber vessels and filters at compressor stations.
- Secondary containment and integrity testing of fractionation tanks used for pigging operations.
- Secondary containment and integrity testing of pressurized odorant tanks for natural gas pipelines.
- Lighting and fencing requirements for remote facilities. Remote pipeline facilities generally have no electric service. Lighting requirements conflict with other homeland security measures that avoid calling attention to remote pipeline facilities.
- Integrity testing requirements for numerous small tanks and 55 gallon drums.

On a national scale, the pipeline transport of crude oil, petroleum products, and natural gas is such a large industry that the potential impact of SPCC compliance costs on product prices to the consumer are diluted. It can be easy to lose sight of the potential impact of the cumulative cost for SPCC compliance at multiple facilities owned by a single company. An example of cumulative SPCC compliance impacts is provided by the Williams Energy Partners *2002 Annual Report* in which Williams Pipeline Company reports paying \$1.6 million to install dike linings and \$300,000 to install breakout tank linings, and

anticipates the need to revise 100 SPCC plans at pipeline and terminal facilities.³⁴ At an estimated cost of \$5,000 to \$10,000 per revised SPCC plan, this may have meant \$500,000 to \$1,000,000 additional expenditure for SPCC compliance. While the estimated SPCC compliance costs for any single facility may not seem unduly high, these costs add up quickly for pipeline companies, which have numerous facilities along their pipeline routes.

In 2002, total petroleum pipeline revenues were \$6,946 million or approximately \$35,000 per pipeline mile.³⁵ Total natural gas pipeline revenues in 2002 were \$19,968 million or approximately \$14,000 per pipeline mile.³⁶ For oil pipelines, estimated SPCC compliance costs range from \$295 per pipeline mile for the low cost scenario to \$2560 per pipeline mile for the high cost scenario. This represents a range from 0.8 percent of total oil pipeline revenues for the low cost compliance scenario to approximately 7 percent of total oil pipeline revenues for the high cost scenario. Estimated SPCC compliance costs range from \$32 per pipeline mile for natural gas pipelines under the lower cost scenario to \$254 per natural gas pipeline mile under the high cost scenario, representing a range from 0.2 percent of total natural gas pipeline revenues for the lower cost scenario to approximately 2 percent of natural gas pipeline revenues for the high cost scenario. This suggests that estimated SPCC compliance costs are likely to have a greater economic impact on oil pipelines than on natural gas pipelines. SPCC compliance costs that potentially range from 0.2 percent to 7 percent of total pipeline revenues are not trivial, especially when added to the cumulative costs of compliance with a host of other environmental and pipeline safety regulations.

Public comments on the 2002 SPCC rule and the proposed 2005 amendments suggest that regionally or locally significant energy impacts could arise from the cost impacts on smaller operators and marginal operations across several energy sectors. Pipeline industry representatives appear to agree that SPCC compliance costs, although potentially quite high, are unlikely to result in the significant shut down of pipeline operations and or cause a direct negative impact on energy supply. Pipeline O&M costs, which includes most SPCC implementation costs, can not be passed directly through to customers and do not apply directly to a pipeline's rate case. The most likely impact is that SPCC compliance costs shift resources away from other areas such as staffing, research and development, participation in voluntary emission reduction programs, and certain facilities upgrades. Pipeline industry stakeholders have commented that the convergence of compliance requirements for the SPCC rule and Clean Air regulations has had an intangible impact on pipeline operations, in effect forcing some pipeline operators to "do more with less" by relying upon fewer staff and reducing facility investments.³⁷

It is not difficult to imagine a scenario under which the cumulative impacts of SPCC compliance costs plus other environmental and safety regulatory compliance costs might cause smaller regional crude oil pipelines to be unprofitable. For such pipelines, the chief energy impact would be loss of crude oil production from older, marginal oil fields, because a reliable and cost-effective means to market the oil produced from old fields in mature regions is needed to sustain the economic viability of low rate producing oil wells. Crude oil pipelines that continue to operate in mature producing regions may be only marginally profitable, especially if the pipelines were originally designed to handle much larger volumes of throughput than occurs today. If low rate wells are shut in for lack of cost-effective and reliable transportation to market, significant domestic oil reserves could be lost to production.

³⁴ Williams Energy Partners, L.P., *2002 Annual Report*

³⁵ Source: 2002 U.S. Economic Census. Total includes both crude oil and petroleum products pipelines and both onshore and offshore pipelines. Total revenues for crude oil pipelines = \$3,333.6 million; Total revenues for petroleum products pipelines = \$3,613 million.

³⁶ Source: Total pipeline revenues from 2002 U.S. Economic Census, includes both onshore and offshore pipelines. Assumes 1.4 million natural gas pipeline miles (includes gathering lines, interstate and intrastate transmission pipelines and distribution pipelines)

³⁷ Personal communication to Advanced Resources from AGA, IGAA, API and AOPL representatives of pipeline sector member companies.

List of Attachments

- Attachment 1:** Key Features of the 2002 SPCC Rule of Relevance to Oil and Natural Gas Pipelines
- Attachment 2:** Proposed 2005 SPCC Rule Amendments that Potentially Impact Oil and Natural Gas Pipelines
- Attachment 3:** Background Information on EPA and DOT Jurisdiction for Oil Spill Prevention Planning

Attachment 1.

Key Features of the 2002 SPCC Rule of Relevance to Oil and Gas Pipelines

The 2002 SPCC rule expands both the scope and requirements of the original 1974 SPCC rule, which has generated considerable confusion and controversy as a result. The implementation of the final rule is now pushed forward to October 31, 2007, more than five years beyond the original implementation date of August 16, 2002. This section briefly describes key features of the 2002 SPCC rule that are likely to be relevant to oil and gas pipelines.

The universe of oil-filled vessels covered by SPCC requirements has expanded to include small tanks, drums and oil-filled equipment.

- The 2002 SPCC requirements apply to “containers” that “use” or store oil and have a maximum or ‘shell’ capacity of 55 gallons or more.
- Oil-filled operational and manufacturing equipment are now included, in addition to petroleum storage tanks, which were the primary focus of the 1974 rule. Newly regulated oil-filled “containers” include process vessels, gathering lines, sumps, pipelines, tank trucks, oil-filled “motive” power equipment, and non-motive oil-filled equipment such as compressors, oil-water separators, and electrical transformers and tank trucks. Containers less than 55 gallons are exempt from SPCC requirements.
- Exempt containers include:
 - Containers that use or store oil having a shell capacity less than 55 gallons
 - Storage tanks and containers used exclusively for wastewater treatment
 - Completely buried storage tanks and associated piping with less than 42,000 gallons capacity and loading racks associated with exempt underground storage tanks
 - Permanently-closed aboveground storage tanks
 - Pressurized piping, gathering lines, tanks and other facilities and equipment that are “in-line” (not pressure –isolated) with the operating pressure of the main pipeline, and are already regulated by the Department of Interior, the Department of Transportation, or the U.S. Coast Guard

Spill reporting, SPCC Plans and training requirements

- The discharge reporting threshold is 1000 gallons or two spills over 42 gallons within one year, or a discharge of any size that produces a visible sheen of waters of the U.S.
- The review frequency of SPCC Plans is extended from 3 to 5 years and SPCC Plans can be integrated with emergency plans or use non-standard formats.
- The SPCC Plan must be amended whenever there is a change in the facility that “materially affects the facility’s potential for the discharge of oil into or upon the navigable waters of the United States...” Examples of a material change include the commissioning or decommissioning of new storage tanks, pumps and booster stations.
- The 2002 SPCC Plan requirements are more detailed and comprehensive, requiring detailed facility drawings; the location and description of all oil-filled containers; oil handling/emergency procedures; discussion of SPCC compliance for each subject container or an explanation of equivalent environmental protection; waste disposal options; and emergency notification list, etc. Historical spill information is no longer required in the SPCC Plan.
- Training is required for “oil-handling personnel” only and must include “discharge briefings” at least once a year.

Secondary containment for oil-filled equipment

- Sized secondary containment such as liners, dikes, berms, and curbing are required for all oil-filled vessels that contain 55 or more gallons of oil. This includes process equipment and piping, loading racks, pumps, process tanks, separators and engine crankcases, as well as storage tanks.
- The secondary containment must be “sufficiently impervious” to contain the oil until it can be cleaned up.
- Secondary containment can be waived on the basis of technical impracticality, but not because of economic cost, and must be replaced with a spill contingency plan plus periodic integrity testing and/or inspection.
 - Integrity testing must combine visual inspections with another nondestructive test method
- New buried piping must be coated, wrapped and provided with cathodic protection.

Requirements for bulk storage containers and loading/ unloading racks

- Secondary containment must be provided for loading racks sufficient to hold the maximum capacity of any tank car or tank truck.
- Locks, warning system or alarms must be provided to prevent overfilling of tanks or disconnection of the oil transfer lines at loading/ unloading racks.
- Secondary containment or an alternative drainage catchment system must be provided for all bulk storage tanks sufficient to hold the capacity of the tank plus precipitation.
- Regular visual inspection and non-destructive testing of aboveground storage tanks must be conducted.
- Regular leak tests are required for regulated buried tanks and associated pipelines, plus cathodic protection and coatings for buried tanks.
- Storage tanks must be retrofitted where necessary with high liquid level alarms and pump “cut off” devices.

Security

- Facilities must be fenced, lighted and locked or guarded to prevent oil spills resulting from vandalism.
- Various switch guards, covers and locks are required for oil-filled operational and manufacturing equipment such as pumps, pipe valves and for the valves of emergency drainage/ discharge systems.

Definition of Facility and Clarification of Regulatory Jurisdictions

- The 2002 SPCC Rule provides clarification of the applicability of SPCC requirements including definitions of a “facility” and the universe of “non-transportation-related” facilities.
- The 2002 SPCC rule further describes the different jurisdictions of federal agencies for regulating oil-filled equipment and containers.
- EPA’s definition of “navigable waters of the US” remains the subject of pending litigation.

Attachment 2.

Proposed 2005 SPCC Rule Amendments that Potentially Impact Pipelines

EPA proposed the December 2005 SPCC rule amendments to reduce the compliance burden on small facilities and to address other concerns raised by stakeholders. It is not apparent that the proposed 2005 SPCC rule amendments offer significant regulatory compliance relief for oil and gas pipelines. Additional information is needed about the size and number of pipeline breakout tanks and other tanks subject SPCC requirements, as well as explicit clarification of the SPCC-jurisdiction issues. This remains an issue for further investigation.

2005 SPCC Rule amendments reduce compliance requirements for qualified small facilities.

- This amendment is intended to provide relief to small facilities such as smaller farms, small commercial enterprises and marginal oil and gas wells. It may have little impact on oil and gas pipelines if many SPCC-regulated tanks and equipment are found to have capacity greater than 10,000 gallons. EPA's regulatory analysis for the proposed SPCC amendments estimates that all of the SPCC-regulated tanks associated with pipelines have capacities less than 5,000 gallons.³⁸ This estimate is yet to be confirmed.
- This amendment allows owner-operators of a qualified facility to self-certify the facility's SPCC plan rather than require certification by a licensed Professional Engineer.
- Aggregate facility storage capacity must be 10,000 gallons or less. The facility must have no reportable discharges during the ten years prior to self-certification or since becoming subject to SPCC requirements.
- Self-certified SPCC plans for qualified facilities are permitted some flexibility in meeting facility security requirements and integrity testing of bulk storage containers, such as relying on visual inspection alone or industry-standards for steel tank integrity testing.

Alternatives to sized secondary containment for oil-filled operational equipment.

- In the event that natural gas compressor stations and other related pipeline-facilities are characterized as "non-transportation related," a universe of oil-filled operational equipment will be subject to SPCC requirements. In that case, this amendment might offer regulatory relief to pipeline operators.
- This amendment offers an alternative to secondary containment requirements for qualified oil-filled operational equipment. The alternative approach substitutes an oil-spill contingency plan and a written commitment of manpower, equipment and materials needed to contain and clean up an oil discharge.
- The alternative oil spill contingency plan does not require the facility to first receive an impracticality determination for secondary containment.
- Facilities can exercise this alternative if there have been no discharges from oil-filled operational equipment in the preceding 10 years or since becoming subject to SPCC regulations.

Alternative to integrity testing for shop-fabricated tanks with capacity less than 30,000 gallons.

- The 2002 SPCC rule requires regularly scheduled visual inspection and integrity testing of aboveground tanks. The proposed amendment does not require integrity testing for shop-

³⁸ Source: U.S. Environmental Protection Agency, *Regulatory Analysis for the Proposed Revisions to the Oil Pollution Prevention Regulation (40 CFR Part 112)*, November 2005.

fabricated tanks of 30,000 gallons or less provided all four sides of the tank are visible and can be visually inspected. The amendment may offer some relief to pipeline operators if the SPCC-regulated pipeline tanks generally meet the size and configuration requirements.

- Tanks that have a synthetic liner on the bottom do not require integrity testing even if the tank is not elevated off the ground.
- Tanks that rest on bare ground continue to be of concern for corrosion and leakage and will require integrity testing

Attachment 3.

EPA and DOT Jurisdiction for Oil Spill Prevention³⁹

More than 30 years ago Congress directed the Executive Branch to require spill prevention planning for facilities using, storing or transporting oil. In 1971, EPA and DOT entered into an Agreement where all "transportation related" facilities would be subject to DOT jurisdiction for spill prevention planning, while EPA would have jurisdiction for all "non-transportation related" facilities. Pipeline systems were expressly included under DOT's "transportation related" jurisdictional ambit in the 1971 agreement. DOT and EPA both subsequently defined "transportation" and "pipeline systems" broadly.

The 1971 Agreement also directed the agencies to use a "systems approach" for oil spill prevention planning, and stated that "to the extent possible ... it is considered most practical to assign one agency the responsibility for regulating [any one facility]." The Agreement stated that "DOT will generally be responsible for regulating transportation of oil by pipeline." EPA subsequently promulgated its SPCC regulations, and DOT subsequently promulgated its own Facility Response Plan regulatory requirements.

An Executive Order in 1991 re-confirmed this division of responsibility between EPA and DOT, but added no further practical guidance. In 2000, DOT and EPA entered into a new Agreement on this issue. The 2000 document expressly did not amend or re-delegate any responsibilities set forth in either the 1971 Agreement or the 1991 Executive Order. The 2000 Agreement did add a new definition for "complex facilities," however, which applied to tanks or complexes that engaged in both transportation and nontransportation related activities. Such facilities were to be subject to joint EPA and DOT jurisdiction. The 2000 EPA/DOT Agreement also stated that "as many facilities as possible [should be] subject to single jurisdiction [either EPA or DOT; not both]" EPA issued a guidance letter later in 2000, addressing the scope of transportation related "for spill prevention" purposes. EPA's guidance letter stated that "any storage of oil during transportation is still transportation related, and thus subject solely to DOT jurisdiction." EPA further defined "transportation" in this instance to include "the time between when oil is offered for transportation to a carrier [i.e., a pipeline] and the time that [the oil] reaches its destination and is accepted by the consignee."

The law and guidance applicable to oil spill prevention planning has remained largely unchanged from 1971, with the principal exception the 2000 added definition of "complex facilities." The 2000 Agreement between EPA and DOT on these issues may have added more confusion than clarity, however, principally through attachment of ten diagrams intended to illustrate jurisdictional boundaries. Those diagrams do not reflect actual conditions for most of the pipeline industry, and they do not fully correlate to established law or guidance. For any of a number of reasons, EPA should not seek to expand its SPCC jurisdiction over oil and gas pipelines. More clarity on the limit of EPA's jurisdiction would help, such as a revision of the 2000 Agreement between EPA and DOT (that Agreement called for revision by 2006 in any event). Even without additional clarity, however, existing law and equity argues against expanded SPCC jurisdiction. Further, EPA has criticized DOT's oil spill response plan requirements as too broad or vague (not facility or tank specific). In fact, DOT's FRP requirements are quite similar to the spill response preparedness requirements, a component of the EPA's SPCC program. The same notices, same contractors, same equipment and methods would be used in spill response preparedness in each of the programs thus rendering both programs to be somewhat duplicative.

In conclusion, the pipeline industry continues to object to the concept of dual jurisdiction of facilities, specifically in the SPCC/FRP area. This concern was originally expressed in workshops in the early 1990s after the passage of OPA 90 which required industry to have emergency response plans that would be administered by federal agencies including DOT, EPA, USCG and MMS. The goal of those

³⁹ Pipeline industry comments provided to Advance Resources International, August 2006.

workshops was to clarify which agencies would regulate which industry facilities. Most agencies have reached agreements that define one agency oversight responsibilities and thus avoid two agencies regulating the same facilities for the same things. It is our understanding that similar jurisdictional issues between DOT and MMS were solved by negotiation which included consideration of involved industry input, perhaps even on a facility by facility basis. Similar negotiations and agreements are needed between EPA and DOT to eliminate dual jurisdiction over pipeline systems.